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THE
Significance and Localization of Pain
—IN—
PELVIC DISEASES.

BY HENRY C. COE, M.D.,
NEW YORK.

*Read before the New York Neurological Society,
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Considering the fact that local pain is the symptom which usually impels a woman to seek the aid of the gynecologist, and that the relief of this pain is the object aimed at in most of his manipulations and operations, it would seem as if our information on this point ought to be more definite than it is. However satisfactory it may be to the surgeon to contemplate a neat and artistic bit of plastic work upon the genito-urinary tract, or to insure a rapid and easy convalescence after laparotomy, if the patient experiences but little mitigation of the pain, to be rid of which she submitted to the operation, in her opinion, at least, it has not proved eminently successful. This may be a narrow view to take of the subject from a scientific standpoint, but it is a practical one. In any branch of medicine the most intelligent patient measures the skill of the physician by his ability to afford prompt relief from present suffering, and it is difficult to convince her that there is any improvement in her condition so long as the pain persists. Pain is the popular indication of existing disease, the seriousness of the latter being proportionate to the severity of the former. This is especially true in pelvic troubles, where the subjective element is so prominent; that patients are constantly at fault in their inferences is a matter of common experience. How often does epithelioma of the cervix make fatal inroads without giving rise to much more pain than does

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a simple displacement! The inability of the average patient to describe clearly, and to localize, pelvic pain will be apparent on reviewing the vague symptomatology recorded in hospital and dispensary case-books; nor is the connection between the symptoms and the local condition always established by the vaginal examination. The question has often presented itself to my mind: If the true origin of this pain is obscure and ill-defined, how can one hope to remove it by treatment directed more or less at random? It is greatly to be regretted that this subject has not received more attention from neurologists, whose studies would naturally lead them to view it from a less materialistic standpoint. It certainly furnishes as legitimate a field for their investigation as do diseases of the central nervous system. It is with some trepidation that I bring this subject before the society, because I am conscious of the fact that you must regard with a certain degree of suspicion the off-hand manner in which gynecologists explain nervous symptoms, which you know to be by no means so easy of elucidation. However imperfect this paper may be, I trust that it may at least provoke a discussion which will be of peculiar value, in that it may tend to throw new light upon the obscure subject of pelvic pathology. The matter is naturally considered under two heads, the subjective and objective—the significance of pain as described by the patient, and its localization by the physician. Reflex pains will be discussed separately. It is unnecessary to call attention to the fact that it is a delicate and difficult matter to decide from a woman's own statement concerning the exact character and severity of the pain of which she complains, since there is a common tendency to exaggerate this symptom for which we may not make due allowance until after several interviews. Again, her ability to describe its exact character, site and mode of occurrence, is usually limited. Certain pains, such as back-ache, "bearing down" sensations, etc., are so vague and general that we cannot assign any special importance to them except in connection with more definite pelvic symptoms. Even the pains which are commonly regarded as more or less characteristic of a certain pathological condition are associated with other conditions of a widely different nature. Let us glance at a few of these pains which are sometimes referred to in the text-books as almost pathognomonic, and see if they cannot be reduced to a common basis. The throbbing pain of acute inflammation is excluded as possessing no features peculiar to the region of the pelvis. Among these are constant, aching pain over the lower part of the sacrum, shooting pain in the ovarian region, which is subject to exacerbations just before the menstrual period, and the peculiar

"gnawing" pain in the pelvis which accompanies carcinoma uteri. The subject of dysmenorrhœa would be an interesting one for discussion, especially with the view of determining how much of the pain is of uterine, and how much of ovarian, origin, but to treat it at length would lead us away from the main question.

Chronic pain over the sacrum (as distinguished from the backache so common in women) seems to point quite constantly to some morbid condition of the internal generative organs. It is to be carefully distinguished from purely referred pain similarly located, but having more of a neuralgic character, or from that due to direct pressure on the sacral nerves. This symptom is indicative of some lesion in the posterior half of the pelvis, and it has seemed to me that it is nearly always referable to subacute or chronic inflammation of the perimetritic tissues. It is, of course, noted in connection with retro-displacement of the uterus, prolapsed ovaries, and malignant disease, but a careful study of such cases will generally show that it is most constant and severe when these conditions are associated with inflammatory processes in the peritoneum, or connective tissue, or in both. With reference to the latter, "it by no means follows, (to quote from Mundé's "Minor Surgical Gynecology") that the plastic exudation is of great amount, forming an actual tumor." "As a rule," the author adds, "the sacralgia increases in proportion to the size and extent of the exudation." This explains why pain in the sacrum is so common in connection with acquired antifixion, where there is no question of direct pressure on nerves; the cause is to be found in the parametritis posterior which precedes, and leads to, the displacement. It explains, moreover, why adhesion of the retroflexed uterus is associated with so much more constant and severe pain than is simple retro-displacement, without imprisonment of the organ. We can hardly attribute the pain to direct pressure on the sacral nerves, because the rectum is interposed and Barnes' explanation seems rather forced. This author (*Diseases of Women*, page 105), says: "The pain is probably not due so much to direct pressure of the body of the uterus, even when enlarged, upon the sacral nerves, as to the indirect pressure occasioned by the accumulation of hardened feces in the rectum." The rectal symptoms due to the mechanical pressure of the fundus are unmistakable, but they are clearly localized, are not continuous, and are easily distinguishable from the deep-seated aching pain which results from chronic para- and perimetritis. From these brief statements it seems fair to assume that when a patient states that she has a more or less continuous, aching pain referred to the lower part of the

sacrum, but seated deeply within the pelvis, we are justified in assuming that it is directly due to a sub-acute or chronic perimetric inflammatory process in the posterior pelvic fossa, which may, or may not, be associated with a retro-displacement or tumor. In other words, the pain is due principally to the inclusion of sympathetic nerves in the exudates or adhesions, and not to direct pressure on the sacral plexus. This will appear more plausible on studying the effect of such adhesions when situated in the broad ligaments.

In selecting as another fairly typical variety of pelvic pain that due to malignant disease of the uterus, it may seem as if I had made a serious omission in not mentioning laceration of the cervix. But, it must be evident that not only is the cervix a relatively insensitive region, but that laceration is only one link in a pathological chain, so that by itself it cannot be regarded as giving rise to any distinctive symptoms.

The popular idea is that commencing epithelioma of the cervix is almost invariably accompanied by such pain as that described by Rigby, i. e., "A sudden, sharp, burning dart of neuralgic severity, always proceeding from one spot, and sometimes transfixing the whole pelvis." From what we know of the comparative poverty of the cervical tissue in nerve-filaments, we are forced to question its frequency on anatomical grounds alone; in this we are supported by the clinical evidence. Pain (to quote from Hart and Barbour), "is not present so long as the disease is limited to the cervix; hence, it is of no use as a diagnostic of carcinoma of the cervix in its early stage unless the cellular tissue has been at the same time involved." Hewitt (*Diseases of Women*, page 127) expresses the same thought when he says: "The pain due to cancer frequently arises from local attacks of peritonitis." In other words, the pain in this case has the same origin as in the former condition, although it is more severe, neuralgic and intermittent. Moreover, the patient is less able to localize it, since it is at one time sacral, at another hypogastric, is sometimes described as "a dull, gnawing pain localized in the pelvis or back," sometimes as "a sharp pain, shooting through to the back, or down the thighs to the knees." The latter points, of course, to direct pressure on the nerve-plexuses by secondary growths.

Carcinoma of the body of the uterus early gives rise to pain, just as does disease of the cervix after it has extended to the body. Sir James Simpson describes it as "slight and intermittent perhaps, at first, but soon reaching a high pitch of intensity, at which it continues for an hour or two, and then gradually subsides." Sarcoma, on the contrary, often occasions remarkably little pain. Can it be because in

the case of carcinoma the intra-muscular nerves are more directly affected by the inroads of the disease than occurs in sarcoma of the endometrium? The acute or subacute peritonitis, which invariably attends the progress of carcinoma, readily explains the more severe, continuous and diffuse pains which mark its later stages. Here again, it may be assumed that the pressure of exudates on included nerve-filaments is an important causal factor.

It remains to consider a third common variety of pelvic pain, which is frequently spoken of as "ovarian." It is variously described as "shooting," "darting," "sickening," and is usually located in the left groin or iliac region, is deeply seated, and is frequently associated with referred pains in the sacral and sciatic nerves, and mammary neuralgia, all of which are aggravated at the commencement of the menstrual period. Pain of a peculiarly sharp, lancinating character in the same region has been ascribed to an accompanying affection of the tube, but it presents no peculiarities that could not be explained by localized peritonitis. Now, as is well known, the ovarian region is the seat of various reflex pains associated with disease of the uterus, of the opposite ovary, or even of the rectum, so that locality alone does not give a positive indication of disease of the gland. The true ovarian pain is probably only clearly defined in the case of the enlarged and prolapsed (but non-adherent) organ during defecation or coitus, when it is directly subject to mechanical pressure. But, when diseased ovaries and tubes are buried in adhesions the characteristic pain (if there is any) is masked by that due to the adhesions. This is an extremely important practical point, which has only recently received careful attention. It has been shown by Hegar that cicatricial nodules in the broad ligaments may produce nervous symptoms identical with those referred to chronic oöphoritis, even including the exacerbations at the menstrual periods. If this is true, it seems to be a fair inference, as I have repeatedly urged in discussing this subject from a purely gynecological standpoint, that in the majority of the cases in which we assume that pain is of intra-ovarian origin, it is really due to pressure on the nerve fibres *before* they enter the ovary, and not to pressure on the terminal filaments within the stroma, in consequence of general induration of the tissue. If the pain was principally of centric origin it would not only be constant, but it would be unrelieved by electricity or by the separation of peri-oöphoritic adhesions, since the morbid conditions within the ovary would remain unchanged. We shall have occasion to refer to this again under the head of treatment.

I have alluded very briefly to three varieties of direct pelvic pain, which differ not only in their location, but in their character and mode of occurrence, since they seem to illustrate most clearly the point which I wish to make, viz., that when a patient describes a chronic and more or less continuous pain situated over the sacrum, the hypogastrium or the ovarian region, we are safe in inferring that, although there may exist disease or displacement of one or more of the pelvic viscera, the chief causal factor is the accompanying para- and perimetritis; that is, it is due more to pressure upon, or irritation of, the nerves within the pelvic connective tissue and peritoneum, than to irritation of their terminal filaments within the generative organs, or to the mechanical pressure of the latter upon adjacent nerve-trunks.

Having found that the significance of pain as described by the patient is vague and ill-defined, it remains to be seen if we can locate it more exactly by a physical examination. There are several natural obstacles in the way. In the first place only the cervix uteri is directly accessible to the touch, the rest of the genital tract being felt through the interposed vaginal vault and abdominal wall, with other strata of tissue that lie between. Then, it is a matter of common observation that certain regions are peculiarly sensitive to pressure under conditions which, so far as we know, are perfectly normal. Firm pressure in the anterior, posterior, or either lateral fornix frequently gives rise to considerable pain, which in hyperæsthetic subjects may find forcible expression. Whatever may be the anatomical explanation, this pain evidently originates within the pelvic tissue proper, perhaps in the peritoneum. With the exception of the sensation which a patient describes when pressure is made upon an ovary displaced into Douglas's pouch, I can not recall any variety of pelvic pain which can be reproduced, as it were, by the pressure of the examining finger. Thus, by pressure on a retro-uterine exudate we cause pain, but it is referred rather to the point where the pressure is made; it is not an exaggeration of the diffused aching pain, of which the woman complains. Neither can we be said to reproduce the lancinating pains of malignant disease when we manipulate the cancerous uterus. The cervix itself is, as has been said, comparatively insensitive, and the cases in which direct pressure on the "cicatricial plug" in the angle of a laceration occasions direct and reflex pains are less common than is generally supposed. Exact localization of the pain in this condition is exceedingly difficult, because if the tear has involved the vaginal fornix, the resulting cicatrix in the latter may be quite painful. But, it is the secondary inflammation in the broad ligaments which give rise to the

most marked pain, which is often referred to the ovarian regions; the painful bands, or nodules, when situated at the bases may be located quite distinctly through the lateral fornices. However, there are usually other complications (endometritis, hyperplasia, etc.) which doubtless in themselves cause more or less pain. The practical point is that we may reverse the pathological processes—repair the laceration, cure the endometritis and subinvolution—yet the pains, direct and reflex, persist. In many of these cases it seems as if we could establish a direct connection between their persistence and the persistence of the indurations in the broad ligaments.

The most difficult task is that of trying to establish by the bimanual the connection between pelvic pain, and obscure, ill-defined masses or exudates high up in the broad ligaments, which can often be mapped out only when the patient is placed under the influence of an anæsthetic, and then any estimation of the amount of pain is out of the question. The great difficulty is that not only are these masses not directly accessible to the touch, but even when they consist of tubes and ovaries, these are so fused together and buried in adhesions that their original shape is lost, while there can be little hope of developing any characteristic "ovarian" pain by making pressure upon them. Circumscribed indurations in the broad ligaments are often found at autopsies, so situated that they could not have been detected during life, yet these may have given rise to marked nervous symptoms which were referred to an organ to which the indurations were adjacent. Without multiplying examples, it will be evident that a physical examination affords us but little aid in ascertaining the exact site, or origin of pelvic pain.

Before proceeding to make a few practical deductions, a brief reference may be made to some of the so-called reflex pains of pelvic origin. In my opinion gynecologists show a tendency to exaggerate their frequency. I agree with Dr. Dana ("A Clinical Study of Neuralgias, and of the Origin of Reflex or Transferred Pains," Reprint, page 24), that vertex pain "is often an indication simply of anæmia,"—for out of twenty-five patients who attend my clinic in an afternoon, probably twenty will confess that they have cephalalgia, which can often be explained without reference to their local condition. I can also subscribe to the statement that "pelvic irritations are felt most frequently in the upper and short branches of the lumbar plexus, next perhaps in the intercostal nerves and upper cervical nerves," etc. Reflex arthralgiæ of pelvic origin I have seldom observed. I was not aware that sciatica was rare in connection with ovarian trouble. Mundé

states that "a peculiar pain in the hip, somewhat above the ischiatic notch, is frequently indicative of ovarian disease." But, he adds (rather vaguely) that "a blister over the painful spot may relieve the pain and prove it to be merely sciatica."

Reference has already been made to pains in the lumbo-sacral region, radiating down the thighs, which some writers ascribe to direct pressure on the nerves from exudates or displacements of the uterus. This cause must certainly be rare. It is more probable that such pains are reflex in character. And this leads us to the question of pains referred to, but not originating in, certain regions within the pelvis itself, the significance and localization of which it is extremely difficult to determine. Of these the most complex is irritation in the vicinity of the ovary from disease of the opposite gland, of the rectum, uterus, or even from the presence of small indurations in the adjacent peritoneum. "Ovarian neuralgia" is a loose and convenient term in this connection. It is only necessary to allude to the sympathy which exists between the urinary and genital tracts in order to explain the interchange of pains between them. In fact, after studying the intricate relations of the pelvic sympathetic nerves we can readily imagine the possible combinations which may exist. Moreover, the conditions are too complicated to be explained by reference to Mr. Hilton's beautiful law. In general, it may be said of these reflex pelvic pains that, while there is no doubt as to their frequency, there is much uncertainty as to their origin. We may refer them to some lesion of the cervix, corpus uteri, or ovary, but positive proof is quite as often absent as it is present. In view of the great richness of the nerve-plexuses around the pelvic organs as compared with the terminal filaments in their substance (compare the cervix, the endometrium, and the ovarian stroma), it seems justifiable to refer most of the reflex, as well as the direct pains, to localized inflammatory processes in the parametric tissues, which may, or may not, be capable of detection. In addition to pain referable to coarse lesions, I need only hint at the subject of functional troubles in order to open up a field for discussion which is comparatively fresh.

The practical deduction which I desire to make relates both to prognosis and to treatment, and may be stated briefly as follows: Since we are seldom able to locate the exact site even of the most characteristic pelvic pain, we should be somewhat guarded in our promises to remove it by modification, or removal of, the supposed cause. Thus, we may repair a lacerated cervix, and yet the pains, direct and referred, are not removed, because we did not discover the true cause; or (and this is far more important), we may extirpate an

ovary for the relief of pain apparently located in that organ, yet the same sensations persist. Without dwelling upon the latter theme, which has become rather trite, let me in passing quote from one of the most enlightened and conservative of German gynecologists (Winckel *op cit.*) who, in commenting upon oöphorectomy when performed for the relief of pain alone, says (following Hegar) that the operation should not be performed "when the broad ligaments are contracted and rigid, and when nodules and indurations are found in their structure, because it is possible that these abnormalities, which cannot be removed by the operation, may be the chief causes of the neurosis." Again, he remarks: "According to the law of eccentric projection toward the periphery, the sensation of pain which is felt in the ovary will persist after the latter has been removed, as we so often observe in other nerves, and in other parts of the body."

While desirous of carefully avoiding any criticism of the value of gynecological operations, I would call attention to the fact that many of those performed for the purpose of ameliorating the symptom *pain*, must continue to be more or less empirical, until we attain such refinement in diagnosis that we are able to refer this pain to a certain definite, circumscribed area in the pelvis. Whether the plan advocated by Dr. Polk (in recent papers read before the New York Obstetrical and the American Gynecological Societies) of separating the adhesions around the displaced uterus and appendages will prove to be of permanent benefit to the patient as regards the relief of pain is still doubtful. There is some reason to think that it may be, although the risks involved in the performance of this operation are scarcely less than those attending removal of the ovaries and tubes. But into this question I do not intend to enter here.

There is a therapeutic agent, the value of which is beginning to be appreciated by gynecologists, and which should be especially interesting to you, because you, of all the specialists, are most familiar with it—I mean the use of electricity. I do not refer to its use as an actual local application to diseased organs and tissues, but to its employment for the relief of pelvic pain. That it has a future in this direction will appear from the testimony of prominent gynecologists as to the sedative effect of galvanism in oöphoralgia, and more recently from that of Apostoli, of Paris, in his paper on the use of the "tension faradic" current in cases of pelvic exudation. The application of electricity in the one instance in the case of recognized adhesions of the appendages, and in the other in inflammation of the perimetrium tissue, and the benefit obtained in both instances, may be

regarded as a practical clinical argument in favor of the theory of the origin of pelvic pain which I have suggested in this paper.

This is not a new theory, of which I have given a mere outline. I am fully aware of the imperfect manner in which it has been presented, and of the fact that I may be open to the criticism of trying to materialize pain, so to speak. But do not gynecologists practically assume to do this when they direct their treatment to a single gross lesion in one of the organs?

The following is a brief resumé of my deductions:

1. That pelvic pain has its origin more often in the perimetric tissues than in any particular organ, being due to irritation of nerve-trunks rather than nerve-endings.

2. That the reflex, or transferred, pains commonly referred to certain lesions in the pelvic organs, may radiate from inflammatory foci in the peritoneum or connective tissues surrounding those organs.

3. That operations upon, or complete removal of, such diseased organs may fail to remove the pain for the reason stated.

4. That this pain, like other nerve pains, may be sensibly relieved by the proper application of electricity.

